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February 9, 1995

VIA MESSENGER

William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

Re: ET Docket No. 93-
Notice of Ex Parte Communication

Dear Mr. Caton:

Yesterday, representatives of Echelon Corporation met with Mark A. Corbitt, Director, Technological Policy, of the Commission's Office of Plans and Policy, to discuss certain issues in connection with the captioned rulemaking proceeding, specifically the inclusion of IS-60 in the proposed decoder interface standard and the effects of that proposal on competition and innovation in the computer and home automation markets. Representing Echelon were Oliver R. Stanfield, Vice President and CFO, and Drew Hoffman, Vice President of Engineering, along with the undersigned and Jeffrey Blumenfeld of this law firm, counsel to Echelon

Pursuant to Section 1.1206 of the Commission's Rules, two copies of the written materials supplied during this meeting are herewith submitted for the record. Please contact the undesigned should you have any questions in regard to this matter.

Sincerely,

Glenn B. Manishin

GBM:hs
Enclosures
cc (w/o encl.): Mark A. Corbitt

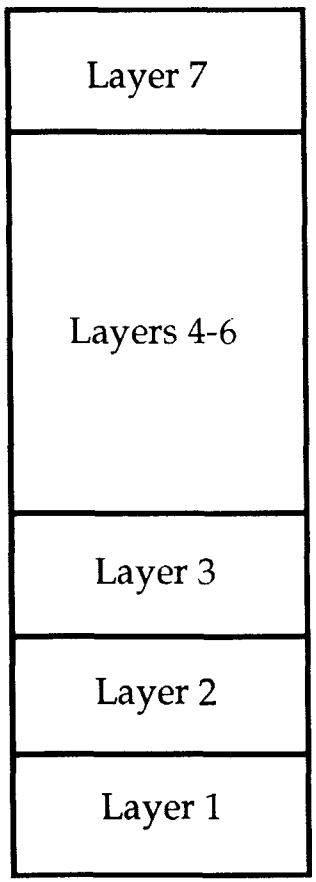
Home Automation Impact of Mandating IS-60 in IS-105

- IS-105 decoder interface uses IS-60 (CEBus) protocol in all four OSI layers implemented
- If IS-105 includes IS-60, decoder interface can serve as a foundation for CEBus home automation
- Adoption of IS-105 with underlying IS-60 provides significant competitive and cost advantages for the proliferation of CEBus home automation over other competing systems

IS-105 Decoder Interface Usage of IS-60

IS-105 Control Bus Protocol

Draft 105.2, Section 2: "The control bus utilizes the CEBus specification which has a layered protocol model."



Application Layer - IS-105.2, Section 1.2: "Decoder Interface control bus is implemented using...EIA IS-60 CEBus...application layer including CAL (Common Application Language)."

Intermediate Layers - not specified as part of IS-105 or IS-60

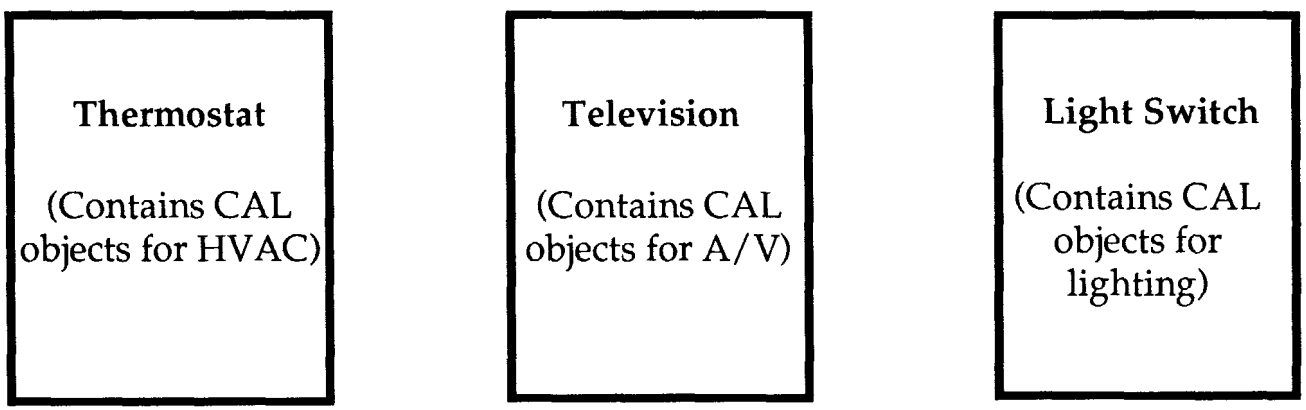
Network Layer - IS-105.2, Section 1.2: "Decoder Interface control bus is implemented using ... EIA IS-60 CEBus... network layer."

Data Link Layer - IS-105.2, Section 1.2: "Decoder Interface control bus is implemented using...EIA IS-60...data link layer."

Physical Layer - IS-105.1, Section 5.6.2: "Messages on the control line follow the protocol specified by EIA IS-60 (the CEBus standard)."

IS-60 (CEBus) as a Command Based System

- CEBus is an extensible specification - additional commands can be added as they are needed through the definition of new CAL objects
- There is no defined set of CAL application-specific objects that products must contain in order to be CEBus compliant
- Mandating IS-105 facilitates extensions of decoder interface products to home automation through embedding other CAL objects



These are <u>all</u> CEBus products

IS-105 as a Foundation for CEBus Home Automation

- **Intelligent IS-105 to CEBus power line module (assuming no IR pass-through)**
  - Low-cost AC wall-mounted device which translates CAL commands between IS-105 twisted pair control bus and power line
  - Intelligent module would recognize commands on one media and translate them to commands and actions on the other media
  - Application example: Security system on power line determines that there is a visitor at the front door and commands A/V system to display camera's image of the visitor on the TV

IS-105 as a Foundation for CEBus Home Automation

- **IS-105 to CEBus power line router (assuming IR pass-through)**
  - In a trivial fashion, commands from an IR remote control are received directly by this router module without translation and sent on to communicate with home appliances
  - Simpler and lower cost than intelligent module - no command translation
  - Application example: User interacts with the IR remote control and TV display and is able to control, monitor and program appliances on the power line media through the router
  - These home automtation remote controls could be marketed separately or additional home control commands could easily be added to existing remote controls

IS-105 as a Foundation for CEBus Home Automation

- **"Enhanced" IS-105 products**
  - There is no requirement that IS-105 products contain only those CAL contexts and objects required to implement IS-105
  - Manufacturers could add home control CAL objects as part of their standard product - a small amount of memory might be required to add to the embedded microcomputer implementing IS-105
  - TV control and monitoring of CEBus home appliances could be a value-added marketing feature
  - Could use simple IS-105 to CEBus power line router with or without IR pass-through

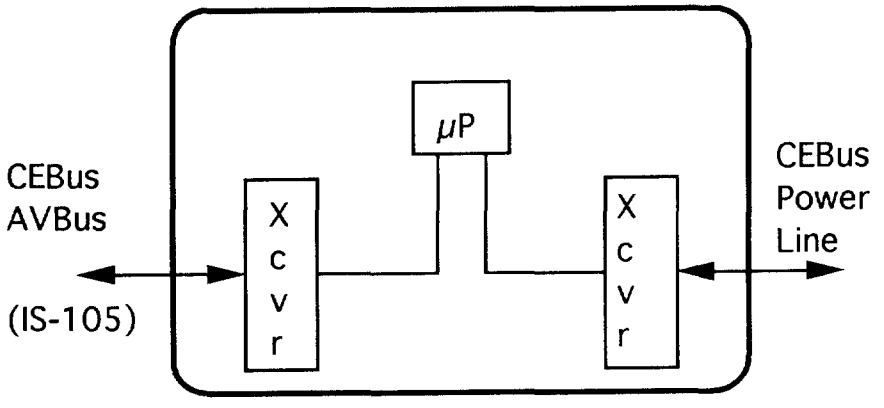
IS-105 as a Foundation for CEBus Home Automation

- **"Upgradable" IS-105 products**
  - Non-volatile memory (e.g. EEPROM or flash) could be used to upgrade products with home control CAL objects in the field
  - Cable operators could download and sell CAL home control features easily over their networks to their IS-105 set-back converters
  - Could be sold as a value-added feature on a "pay-per-view" basis
  - Could use simple IS-105 to CEBus power line router with or without IR pass-through

Biased Consumer Decisions Regarding Home Automation

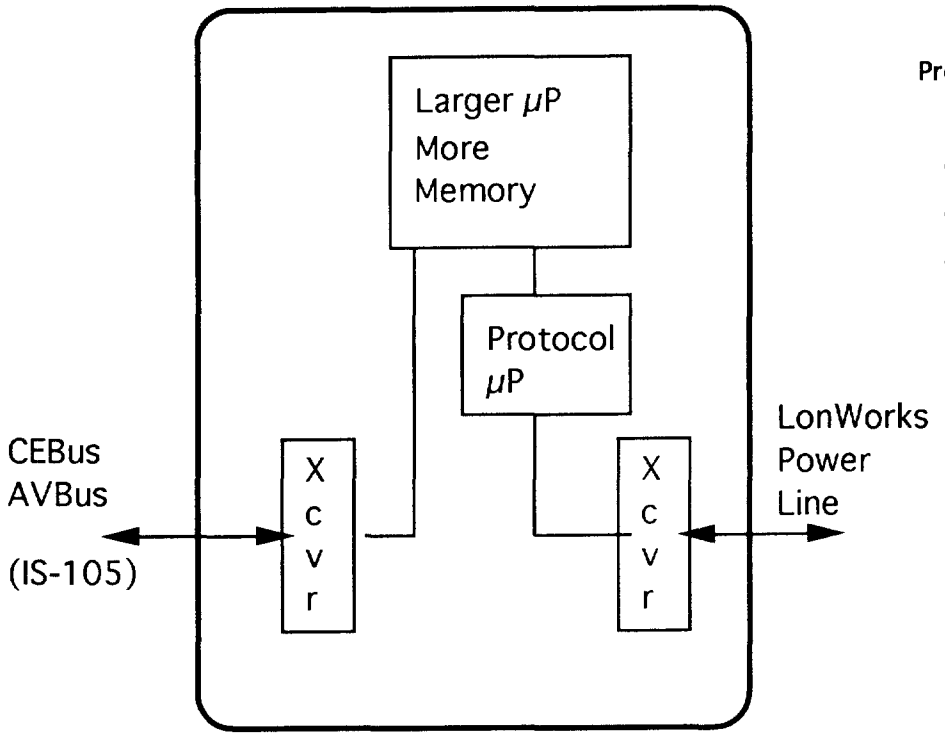
- **Adoption of IS-105 with underlying IS-60 provides significant competitive and cost advantages for the proliferation of CEBus home automation over other competing systems**
  - Translation from IS-105 to CEBus power line is accomplished through a simple and low-cost CEBus router
  - Translation from IS-105 to another home automation protocol, such as the LonTalk® protocol, requires a more expensive and complex protocol converter
    - Cost penalty will be borne by the consumer for the first home automation purchase

CEBus to CEBus Router



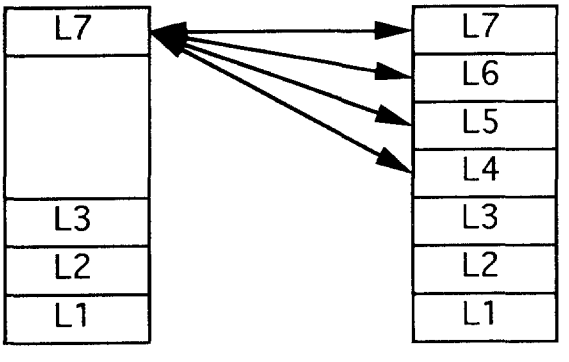
Simple bridge and repeater

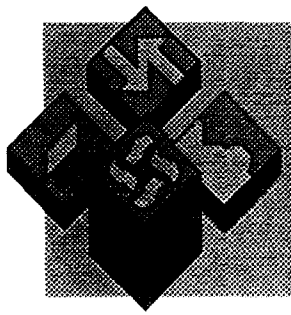
CEBus to LonWorks Router



Protocol Conversion Complexities

- Address translation
- Layer 7 translation
- Network management
- End-to-end services
  - Acknowledgments
  - Authentication
  - Priority
- Speed mismatch
  - Larger buffers





Biased Consumer Decisions Regarding Home Automation

- **Adoption of IS-105 with underlying IS-60 provides significant competitive and cost advantages for the proliferation of CEBus home automation over other competing systems**
  - CEBus and LONWORKS® technology power line transceivers and signalling schemes are incompatible and mutually destructive
    - Once CEBus power line is established in a home, LONWORKS power line communication is not possible
    - Power line media may extend to neighboring homes - thus, CEBus home automation incumbency would be defined even for undecided neighbors